CLAIMS

1.–7. **(canceled)**

8. **(previously presented)** A flow measuring apparatus comprising:

a) a metering reservoir, the metering reservoir having a volume, a reservoir inlet port, a reservoir outlet port, a top and a bottom;

b) a control valve, the control valve capable of allowing or stopping liquid from entering the metering reservoir;

c) a liquid level sensor, the liquid level sensor located so as to able to sense a fluid level within the metering reservoir and operably connected to an upper limit switch and a lower limit switch, the upper limit switch having an upper set point and the lower limit switch having a lower set point; and

d) an electronics module, the electronics module in electrical communication with the upper limit switch and the lower limit switch and further in electrical communication with the control valve

wherein the volume of the metering reservoir between the upper set point and the lower set point is known to within an error tolerance of less than 1%.

9. **(previously presented)** The flow measuring apparatus of claim 8 wherein the volume of the metering reservoir between the upper set point and the lower set point is known to within an error tolerance of less than 0.1%.

10.–12. **(canceled)**

13. **(original)** The flow measuring apparatus of claim 8 wherein the metering reservoir further comprises a breather vent, the breather vent located on the top of the metering reservoir.

14. **(canceled)**

15. **(original)** The flow measuring apparatus of claim 8 further comprising a power supply, the power supply capable of supplying power to the electronics module, wherein the power supply comprises a battery, a solar panel, or current converted to a 12-volt dc power level.

16. **(original)** The flow measuring apparatus of claim 8 further comprising a pump, the pump capable of removing fluid from the metering reservoir through the metering reservoir outlet port.

17.–22. **(canceled)**

23. **(previously presented)** A flow measuring apparatus comprising:

a) a metering reservoir, the metering reservoir having a volume, a reservoir inlet port, a reservoir outlet port, a top and a bottom;

b) a tank outlet conduit, the tank outlet conduit capable of conducting fluid to the reservoir inlet port;

c) a control valve, the control valve capable of allowing or stopping liquid from flowing from entering the metering reservoir;

d) a liquid level sensor, the liquid level sensor located so as to able to sense a fluid level within the metering reservoir and operably connected to a lower switch, the lower limit switch having a lower set point;

e) a paddlewheel, the paddlewheel having a central pivot point and paddles, the paddles radiating from the central pivot point, the paddles capable of rotating about the central pivot point, the paddlewheel located within the tank outlet conduit and capable of rotating in response to fluid flow through the tank outlet conduit; and

f) an electronics module, the electronics module in electrical communication with the paddlewheel and the lower limit switch and further in electrical communication with the control valve

wherein the volume of the metering reservoir is known to within an error tolerance of less than 1%.

24. **(previously presented)** The flow measuring apparatus of claim 23 wherein the volume of the metering reservoir is known to within an error tolerance of less than 0.1%.

25. – 27. **(canceled)**

28. **(original)** The flow measuring apparatus of claim 23 wherein the metering reservoir further comprises a breather vent, the breather vent located on the top of the metering reservoir.

29. **(canceled)**

30. **(original)** The flow measuring apparatus of claim 23 further comprising a power supply, the power supply capable of supplying power to the electronics module, wherein the power supply comprises a battery, a solar panel, or current converted to a 12-volt dc power level.

31. **(original)** The flow measuring apparatus of claim 23 further comprising a pump, the pump capable of removing fluid from the metering reservoir through the metering reservoir outlet port.

32. – 33. **(canceled)**

34. **(original)** A method of measuring a small volume flow comprising:

a) providing a flow measuring apparatus, the flow measuring apparatus comprising a holding tank, the holding tank having a height, a bottom, and a holding tank outlet port; a metering reservoir, the metering reservoir in fluid communication with the holding tank and further having a volume, a reservoir inlet port, a reservoir outlet port, a top and a bottom; a control valve disposed between the holding tank and the metering reservoir, the control valve capable of allowing or stopping liquid from flowing from the holding tank to the metering reservoir; a liquid level sensor, the liquid level sensor located so as to able to sense a fluid level within the metering reservoir and operably connected to an upper limit switch and a lower limit switch, the upper limit switch having an upper set point and the lower limit switch having a lower set point; and an electronics module, the electronics module in electrical communication

with the upper limit switch and the lower limit switch and further in electrical communication with the control valve;

b) providing a fluid within the holding tank, the fluid in the holding tank having a volume;

c) opening the control valve to allow fluid flow between the holding tank and the metering reservoir;

d) filling the metering reservoir with the fluid until the upper limit switch is activated;

e) closing the control valve to stop fluid flow between the holding tank and the metering reservoir;

f) emptying the metering reservoir of fluid until the lower limit switch is activated; and

g) measuring the fluid emptied from the metering reservoir.

35. **(original)** The method of measuring a small volume flow of claim 34 wherein the step of calculating the fluid emptied from the metering reservoir is accomplished with the electronics module or separately located monitoring equipment.

36. **(original)** The method of measuring a small volume of flow of claim 35 further comprising: calculating the volume of fluid in the holding tank.

37. **(original)** The method of measuring a small volume flow of claim 34 further comprising: powering the electronics module with a battery, a solar panel, or current converted to a 12-volt dc power level.

38. **(original)** The method of measuring a small volume flow of claim 34 further comprising after step (f):

injecting the fluid into a second fluid.